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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,031	11/13/2001	Kenji Kamada	N36-138996M/TH	6620

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RESTON, VA 20190

EXAMINER
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HUG, ERIC J

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/987,031

Applicant(s)

KAMADA ET AL.

Examiner

Eric Hug

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 12 and 14-18 is/are allowed.
- 6) ☒ Claim(s) 6 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

The following is in response to the amendment filed on May 14, 2004.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Ota et al (US 6,379,777). Ota discloses a V-shaped groove having a maximum depth of 150 microns and an opening angle of 70 degrees. A width of at least 125 microns is required to accommodate an optical fiber with diameter of the same value. See column 4, lines 28-33. Geometric calculations yield an actual width of about 210 microns, which agrees with the above requirement. The opening angle of 70 degrees reads on the claimed range of angles and the dimensions encompass the claimed ranges of widths and depth. A prior art range that overlaps a claimed range anticipates a claimed range if the prior art range discloses the claimed range with sufficient specificity (MPEP 2131.03).

The groove is formed by means of a die. No weight is given to the claimed limitation "laser-formed", as this merely speaks to the method of making the claimed groove without providing any structural features that distinguish the claimed groove from that of Ota.

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2. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugihara et al (US 5,425,118). Sugihara discloses a V-shaped groove having a maximum depth of 80 microns and an opening angle of 70 degrees. See column 5, lines 35-45. Geometric calculations yield a width of about 112 microns. The opening angle of 70 degrees reads on the claimed range of angles, and the dimensions encompass the claimed ranges of widths and depth. A prior art range that overlaps a claimed range anticipates a claimed range if the prior art range discloses the claimed range with sufficient specificity (MPEP 2131.03).

The groove is formed by means of a die. No weight is given to the claimed limitation "laser-formed", as this merely speaks to the method of making the claimed groove without providing any structural features that distinguish the claimed groove from that of Sugihara.

3. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Koyama et al (WO 97/35811). Koyama discloses a laser processing method for forming microscopic concavities into a glass substrate. The process includes radiating a laser beam onto the glass substrate and removing glass material by melting, evaporation, or ablation. See particularly Figure 10 and the description under Example 4, page 1, lines 8-23. In this example, the glass is set at a position relative to the laser whereby a real image is formed using a lens. As can be seen in Figure 10, the focal point is outside the surface of the glass substrate, as would be expected with forming a real image, as opposed to having the focal point below the surface of the substrate or on the other side of the substrate, either of which do not produce a real image. Concavities formed in the glass are illustrated in several of the figures. Therefore, Koyama teaches forming a

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concave portion in a glass substrate by irradiating with a laser from above in a state that the laser beam is condensed (focused) outside the glass substrate.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al (US 6,379,777). Ota discloses a V-shaped groove having a maximum depth of 150 microns and an opening angle of 70 degrees. A width of at least 125 microns is required to accommodate an optical fiber with diameter of the same value. See column 4, lines 28-33. Geometric calculations yield an actual width of about 210 microns, which agrees with the above requirement. The opening angle of 70 degrees reads on the claimed range of angles. The width and depth are outside of the claimed ranges of dimensions, however it would be immediately obvious to one skilled in the art that a groove of smaller width and depth would be used to accommodate fibers of smaller diameters. A prior art reference that discloses a range encompassing a narrower claimed range is sufficient to establish a prima facie case of obviousness, In re Peterson, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003) MPEP 2144.05.

The groove is formed by means of a die rather than a laser, however, no weight is given to the claimed limitation "laser-formed", as this merely speaks to the method of making the claimed groove without providing any structural features that distinguish the claimed groove from that of Ota.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara et al (US 5,425,118). Sugihara discloses a V-shaped groove having a maximum depth of 80 microns and an opening angle of 70 degrees. See column 5, lines 35-45. Geometric calculations yield a width of about 112 microns. The opening angle of 70 degrees reads on the claimed range of angles. The width and depth are outside of the claimed ranges of dimensions, however it would be immediately obvious to one skilled in the art that a groove of smaller width and depth would be used to accommodate fibers of smaller diameters. A prior art reference that discloses a range encompassing a narrower claimed range is sufficient to establish a prima facie case of obviousness, *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003) MPEP 2144.05

The groove is formed by means of a die, however no weight is given to the claimed limitation "laser-formed", as this merely speaks to the method of making the claimed groove without providing any structural features that distinguish the claimed groove from that of Sugihara.

#### ***Allowable Subject Matter***

Claims 1-5, 12, and 14-18 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-5 and 14-18 are allowed, because the prior art does not disclose or suggest forming a V-shaped groove in a glass substrate by irradiating the surface of the glass substrate from above with a laser beam condensed outside of the glass substrate.

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Claims 12 is allowed, because the prior art does not disclose or suggest forming a concave portion with a conical hole shape in a glass substrate by irradiating the glass substrate from above with a laser beam condensed outside of the glass substrate.

***Response to Arguments***

Applicant's arguments filed May 14, 2004 have been fully considered and are persuasive. The arguments and amendments to the claims overcome the rejections set forth previously.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

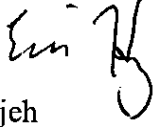
Imoto (JP 08-062445) discloses etching a glass substrate using a CO<sub>2</sub> laser focused on the surface of the glass substrate.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
jeh